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PATENT COOPERATION TREATY

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Translation

Applicant's or agent's file reference 2002P17478WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2003/003505	International filing date (day/month/year) 21 October 2003 (21.10.2003)	Priority date (day/month/year) 22 October 2002 (22.10.2002)
International Patent Classification (IPC) or national classification and IPC F03D 1/06		
Applicant SIEMENS AKTIENGESELLSCHAFT		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>2</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 23 April 2004 (23.04.2004)	Date of completion of this report 08 February 2005 (08.02.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE2003/003505

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
pages \_\_\_\_\_ 1-10 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_ 1-10 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_ 1 \_\_\_\_\_, filed with the letter of \_\_\_\_\_ 30 November 2004 (30.11.2004)
- ☒ the drawings:  
pages \_\_\_\_\_ 1/3-3/3 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

**2. Citations and explanations**

Reference is made to the following documents:

D1: DE-U-299 23 485

D2: WO-A-02/064422.

- 1 Document D1 is considered the prior art closest to the subject matter of claim 1. It discloses (the references between parentheses relate to D1):

a wind power plant comprising a mast (7), a rotor (8) having multiple rotor blades (10), a gondola and further components around which air flows, the surface of the rotor blades having cavities (2) for improving the air flow (see D1, page 3, paragraph 3, to page 4, paragraph 4; figures 1 and 2).

The subject matter of claim 1 therefore differs from the wind power plant known from document D1 in that

the cavities in a rotor blade are substantially disposed in the area between the transition point between laminar and turbulent flow and the leaving edge of the rotor blade, and the shape and design

of the cavities are such that when the air passes the cavities, a vortex is generated therein which helps the air to flow past and accelerates the air volume.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

- 2 Wind power plants are usually grouped in wind parks and form units of varying size. In these wind parks the wind power plants situated downwind are negatively influenced by the turbulence generated by neighbouring wind power plants. The problem to be solved by the present invention is therefore understood to be that of reducing this turbulence so as to ensure that the efficiency of the neighbouring wind power plants is not reduced.

For the following reasons the solution to this problem put forward in claim 1 of the present application involves an inventive step (PCT Article 33(3)):

Document D1 has a different aim, concerning the noise emissions of wind power plants. To reduce sound levels it suggests applying a microstructured coating ("micro-cavities") to the surface of the wind power plant. However, this coating is preferably applied only to the last third of the rotor blade (seen from the rotor).

Document D2 discloses a surface which is applied to a moving body and reduces the air resistance thereof. This surface can be used in many domains, including the rotor blades of wind power plants

(see document D2, page 7, lines 26-27). However, document D2 mentions only the entering edge of the rotor blade as the place where this surface is usually located. Document D2 makes no reference to the problem to be solved by the invention, nor does it offer anything to suggest the feature whereby this surface is to be disposed near the leaving edge.

3 Claims 2-10 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step.

4 This report is based on a new set of claims submitted under PCT Article 34(2)(b). In the present case the amendments to the claims affect the description and the drawings. For example, figure 11 shows a rotor mast which is referred to as being "according to the invention" (see description, page 5, lines 34-36) although according to claim 1 the invention relates only to cavities in a rotor blade. Attention is therefore drawn to the fact that the description and the drawings were not brought into line with the amended set of claims.